WHAT IS CLAIMED IS:

1. A method for providing a compound into a flowing fluid, comprising:

providing a section of tubing, the tubing having an interior with a layer of a matrix material bonded to the interior;

capturing a first compound in the matrix material ;

flowing fluid through the interior of the tubing and over the matrix material;

applying energy to the matrix material; and

releasing the first compound from the matrix material into the fluid.

2. The method of claim 1 wherein the section of tubing is a catheter, the matrix material is a polymer material, the fluid is infusate, the first compound is a therapeutic agent, and which further comprises providing a mixture of infusate and the first compound to a person.

3. The method of claim 1 which further comprises forming a lumen by the matrix material, wherein said flowing is through the lumen.

4. The method of claim 1 wherein said applying energy is by irradiating the matrix material with a laser

5. The method of claim 4 wherein said applying energy is by irradiating the matrix material with a plurality of laser pulses of varying time duration.

6. The method of claim 4 wherein said applying energy is by irradiating the matrix material with a plurality of laser pulses of varying intensity.

7. The method of claim 4 wherein said applying energy is by irradiating the matrix material with a plurality of laser pulses separated by varying intervals.

8. The method of claim 1 wherein said capturing is by photolabily bonding the molecules of the first compound to molecules of the matrix.

9. The method of claim 8 wherein said releasing is by breaking the photolabile bonds.

10. The method of claim 9 wherein the fluid includes water and the matrix material is a hydrogel.

11. The method of claim 1 which further comprises flowing the mixture of the first compound and the fluid into a person.

12. The method of claim 1 wherein said flowing is by withdrawing a bodily fluid from a person.

13. The method of claim 12 wherein the bodily fluid is blood and the first compound is an anticoagulant.

14. The method of claim 12 which further comprises conditioning the bodily fluid and returning the bodily fluid to the person.

15. The method of claim 14 which further comprises before said returning:

providing a second section of tubing, the second section of tubing having an interior with a layer of a polymer matrix bonded to the interior;

capturing a second compound in the polymer matrix;

flowing the bodily fluid through the interior of the tubing and over the polymer matrix;

applying energy to the polymer matrix; and

releasing the second compound from the polymer matrix into the bodily fluid.

16. The method of claim 1 which further comprises sensing a condition of a person, said applying being in response to said sensing.

17. The method of claim 1 wherein said fluid is infusate being provided to person at a constant volumetric flowrate and wherein said releasing does not alter the flowrate.

18. The method of claim 1, wherein said providing includes a first container which includes the fluid, a second container for receiving a flow of the fluid including the released first compound.

19. A catheter for delivering fluid, comprising:

a flexible outer sheath having an interior surface and an exterior surface;

a polymer matrix attached to the interior surface of said sheath, said polymer matrix defining a lumen therethrough for flow of the liquid; and

a therapeutic agent releasably captured by the molecules of said polymer matrix.

20. The catheter of claim 19 wherein said therapeutic agent is releasably captured by covalent bonding molecules of said agent to molecules of said polymer matrix.

21. The catheter of claim 19 wherein said polymer matrix is a hydrogel.

22. The catheter of claim 19 which further comprises a source of energy for releasing said therapeutic agent from said polymer matrix.

23. The catheter of claim 22 wherein said source is a laser and said outer sheath transmits energy from said laser into said polymer matrix.

24. The catheter of claim 23 wherein said source is a laser irradiating the polymer matrix with laser pulses of varying time duration.

25. The catheter of claim 23 wherein said source is a laser irradiating the polymer matrix with laser pulses of varying radiation intensity.

26. The catheter of claim 23 which further comprises a fiber optic cable for optically coupling said laser to said sheath.

27. The catheter of claim 19 which further comprises a source of infusate liquid for flowing liquid through said lumen, wherein the therapeutic agent released by said source of energy diffuses through said polymer matrix and into said infusate liquid.

28. The catheter of claim 19 wherein said therapeutic agent is a first therapeutic agent, and which further comprises a second therapeutic agent intermixed in said polymer matrix with said first therapeutic agent, said second therapeutic agent being releasably captured by the molecules of said polymer matrix.

29. The catheter of claim 19 which further comprises a source of energy for releasing said therapeutic agent from said polymer matrix and a controller operably coupled to said source of energy and a sensor for sensing a response and producing a signal related thereto, wherein said controller activates said energy source in response to said signal.

30. The catheter of claim 29 wherein said controller includes a cardiac monitor and said sensor responds to cardiac activity.

31. The catheter of claim 19 which further comprises a source of energy for releasing said therapeutic agent from said polymer matrix and a controller operably coupled to said source

of energy, said controller operating said source of energy to provide energy to said polymer matrix in a fractally-based pattern.

32. The catheter of claim 19 wherein said outer sheath includes a first interior section and a second interior section, and which further comprises a baffle separating said first section from said second section, said first section and said second section each including a portion of polymer matrix, and which further comprises a first therapeutic agent releasably captured in said polymer matrix of said first section and a second therapeutic agent releasably captured in said polymer matrix of said second section.

33. The catheter of claim 19 wherein said outer sheath includes an opaque coating on the exterior surface for limiting the escape of radiation from said outer sheath.

34. The catheter of claim 19 wherein said outer sheath includes a reflective coating on the exterior surface for reflecting radiation into said polymer matrix.

35. A method of manufacturing a catheter, comprising:

providing a flexible sheath with an interior surface and an exterior surface;

applying a layer of a polymer matrix onto the interior surface;

swelling the polymer matrix in the presence of a fluid;

placing a rod within the interior of the flexible sheath;

forming the flexible sheath into a predetermined shape;

shrinking the polymer matrix by removing the fluid; and

removing the rod.

36. The method of claim 35 which further comprises coating the interior surface of the flexible sheath with a bonding agent.

37. The method of claim 35 which further comprises releasably capturing a therapeutic agent by the polymer matrix before said applying a layer.

38. The method of claim 37 wherein said capturing is by covalently bonding molecules of the therapeutic agent to molecules of the polymer matrix.

39. The method of claim 35 wherein the polymer matrix is a hydrogel and the flexible sheath is adapted to form a portion of a catheter.

40. The method of claim 39 wherein the rod has a surface adherence to the hydrogel that is less than the surface adherence of the hydrogel to the polymer matrix.

41. The method of claim 39 wherein said shrinking is by dehydrating the hydrogel.

42. The method of claim 35 which further comprises forming a lumen by said removing.

43. The method of claim 35 wherein said inserting is before said applying.

44. A method of manufacturing an internally coated tube, comprising:

providing a rod, and a sheath with an interior surface and an exterior surface;

applying a layer of a polymer matrix onto the surface of the rod;

placing the rod within the interior of the sheath;

forming the sheath into a predetermined shape around the rod; and

removing the rod from the formed sheath..

45. The method of claim 44 which further comprises coating the interior of the sheath to improve the adhesion of the polymer matrix to the interior.

46. A method for providing a therapeutic agent to a biological unit;

providing a therapeutic agent releasably captured within a matrix material, the therapeutic agent being releasable upon receiving an energy input;

placing the matrix material and captured therapeutic agent in fluid communication with a fluid which flows in a biological space of the biological unit, the biological space being capable of accepting a constant flowrate of the fluid;

providing energy to the matrix material sufficient to release a portion of the therapeutic agent; and

releasing the therapeutic agent into the biological unit in an irregular pattern.

47. The method of claim 46 wherein said releasing includes variable amounts of therapeutic agent released at variable time intervals.

48. The method of claim 46 wherein said providing a therapeutic agent includes an electronic controller designed and adapted to generate a control signal, and said providing energy is in response to the control signal.

49. The method of claim 46 wherein said releasing is in a fractally based pattern.

50. The method of claim 46 wherein said providing energy is in a fractally based pattern.

51. The method of claim 46 wherein said placing includes the matrix material and captured therapeutic agent being in fluid communication with infusate flowing through a catheter.

52. The method of claim 51 wherein said infusate flows into the vasculature system of an animal.

53. The method of claim 52 wherein the energy is electromagnetic energy provided by a laser.

54. A method for manufacturing a catheter, comprising:

providing a quantity of polymer matrix containing a releaseably captured compound, a sheath with an inner diameter, and a rod with an outer diameter, the inner diameter being larger than the outer diameter;

supporting the sheath in a linear shape;

supporting the rod within the sheath to form an annulus between the outer diameter of the rod and the inner diameter of the sheath;

placing the polymer matrix within the annulus; and

removing the rod.

55. The method of claim 54 which further comprises shrinking the volume of the polymer matrix before said removing.

56. The method of claim 54 which further comprises coating the inner surface of the sheath before said placing to improve the adhesion of the polymer matrix to the sheath inner surface.